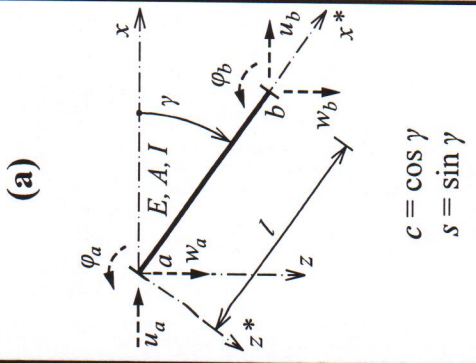
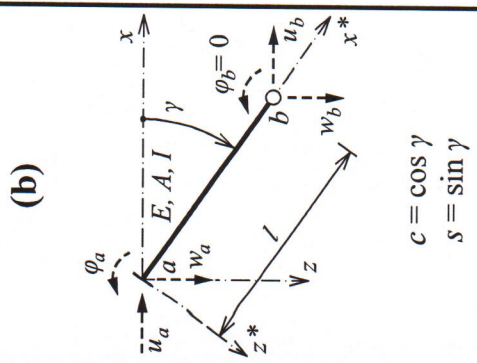


Tabulka 8.2 Globální matice tuhosti prutu

(a)  $c = \cos \gamma$ $s = \sin \gamma$	(8.2a) $[k_{a,b}] = \begin{bmatrix} u_a & w_a & \varphi_a & u_b & w_b & \varphi_b \end{bmatrix} \begin{bmatrix} \frac{EA}{l}c^2 + \frac{12EI}{l^3}s^2 & \left(\frac{EA}{l} - \frac{12EI}{l^3}\right)cs & \frac{6EI}{l^2}s & -\left(\frac{EA}{l}c^2 + \frac{12EI}{l^3}s^2\right) & \left(\frac{EA}{l} - \frac{12EI}{l^3}\right)cs & \frac{6EI}{l^2}s \\ \left(\frac{EA}{l} - \frac{12EI}{l^3}\right)cs & \frac{EA}{l}s^2 + \frac{12EI}{l^3}c^2 & -\frac{6EI}{l^2}c & -\left(\frac{EA}{l}c^2 + \frac{12EI}{l^3}s^2\right) & \frac{EA}{l}s^2 + \frac{12EI}{l^3}c^2 & -\frac{6EI}{l^2}c \\ \frac{6EI}{l^2}s & -\frac{6EI}{l^2}c & \frac{4EI}{l} & -\frac{6EI}{l^2}s & \frac{6EI}{l^2}c & \frac{2EI}{l} \\ -\left(\frac{EA}{l}c^2 + \frac{12EI}{l^3}s^2\right) & -\left(\frac{EA}{l} - \frac{12EI}{l^3}\right)cs & \frac{6EI}{l^2}s & \frac{EA}{l}c^2 + \frac{12EI}{l^3}s^2 & \left(\frac{EA}{l} - \frac{12EI}{l^3}\right)cs & -\frac{6EI}{l^2}s \\ -\left(\frac{EA}{l} - \frac{12EI}{l^3}\right)cs & \frac{EA}{l}s^2 + \frac{12EI}{l^3}c^2 & -\frac{6EI}{l^2}c & -\left(\frac{EA}{l}c^2 + \frac{12EI}{l^3}s^2\right) & \frac{EA}{l}s^2 + \frac{12EI}{l^3}c^2 & \frac{6EI}{l^2}c \\ \frac{6EI}{l^2}s & -\frac{6EI}{l^2}c & \frac{2EI}{l} & -\frac{6EI}{l^2}s & \frac{6EI}{l^2}c & \frac{4EI}{l} \end{bmatrix}$ $\begin{matrix} \swarrow & \searrow \\ a & b \end{matrix}$
(b)  $c = \cos \gamma$ $s = \sin \gamma$	(8.2b) $[k_{a,b}] = \begin{bmatrix} u_a & w_a & \varphi_a & u_b & w_b & \varphi_b \end{bmatrix} \begin{bmatrix} \frac{EA}{l}c^2 + \frac{3EI}{l^3}s^2 & \left(\frac{EA}{l} - \frac{3EI}{l^3}\right)cs & \frac{3EI}{l^2}s & -\left(\frac{EA}{l}c^2 + \frac{3EI}{l^3}s^2\right) & \left(\frac{EA}{l} - \frac{3EI}{l^3}\right)cs & \frac{3EI}{l^2}s \\ \left(\frac{EA}{l} - \frac{3EI}{l^3}\right)cs & \frac{EA}{l}s^2 + \frac{3EI}{l^3}c^2 & -\frac{3EI}{l^2}c & -\left(\frac{EA}{l}c^2 + \frac{3EI}{l^3}s^2\right) & \frac{EA}{l}s^2 + \frac{3EI}{l^3}c^2 & -\frac{3EI}{l^2}c \\ \frac{3EI}{l^2}s & -\frac{3EI}{l^2}c & \frac{4EI}{l} & -\frac{3EI}{l^2}s & \frac{3EI}{l^2}c & \frac{2EI}{l} \\ -\left(\frac{EA}{l}c^2 + \frac{3EI}{l^3}s^2\right) & -\left(\frac{EA}{l} - \frac{3EI}{l^3}\right)cs & \frac{3EI}{l^2}s & \frac{EA}{l}c^2 + \frac{3EI}{l^3}s^2 & \left(\frac{EA}{l} - \frac{3EI}{l^3}\right)cs & -\frac{3EI}{l^2}s \\ -\left(\frac{EA}{l} - \frac{3EI}{l^3}\right)cs & \frac{EA}{l}s^2 + \frac{3EI}{l^3}c^2 & -\frac{3EI}{l^2}c & -\left(\frac{EA}{l}c^2 + \frac{3EI}{l^3}s^2\right) & \frac{EA}{l}s^2 + \frac{3EI}{l^3}c^2 & \frac{3EI}{l^2}c \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$ $\begin{matrix} \swarrow & \searrow \\ a & b \end{matrix}$

Tabulka 8.2 Globální matice tuhosti prutu (pokračování)

(c) $c = \cos \gamma$ $s = \sin \gamma$	(8.2c) $[k_{a,b}] = \begin{bmatrix} u_a & w_a & \varphi_a \\ u_b & w_b & \varphi_b \end{bmatrix} = \begin{bmatrix} \frac{EA}{l}c^2 + \frac{3EI}{l^3}s^2 & \left(\frac{EA}{l} - \frac{3EI}{l^3}\right)cs & 0 \\ \left(\frac{EA}{l} - \frac{3EI}{l^3}\right)cs & \frac{EA}{l}s^2 + \frac{3EI}{l^3}c^2 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ $[k_{a,b}] = \begin{bmatrix} u_a & w_a & \varphi_a \\ u_b & w_b & \varphi_b \end{bmatrix} = \begin{bmatrix} -\left(\frac{EA}{l}c^2 + \frac{3EI}{l^3}s^2\right) & -\left(\frac{EA}{l} - \frac{3EI}{l^3}\right)cs & 0 \\ -\left(\frac{EA}{l} - \frac{3EI}{l^3}\right)cs & \frac{EA}{l}s^2 + \frac{3EI}{l^3}c^2 & 0 \\ \frac{3EI}{l^2}s & -\frac{3EI}{l^2}c & 0 \end{bmatrix}$ $\begin{matrix} \circ & \circ \\ a & b \end{matrix}$
(d) $c = \cos \gamma$ $s = \sin \gamma$	(8.2d) $[k_{a,b}] = \begin{bmatrix} u_a & w_a & \varphi_a \\ u_b & w_b & \varphi_b \end{bmatrix} = \begin{bmatrix} \frac{EA}{l}c^2 & \frac{EA}{l}cs & 0 \\ \frac{EA}{l}cs & \frac{EA}{l}s^2 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ $[k_{a,b}] = \begin{bmatrix} u_a & w_a & \varphi_a \\ u_b & w_b & \varphi_b \end{bmatrix} = \begin{bmatrix} -\frac{EA}{l}c^2 & -\frac{EA}{l}cs & 0 \\ -\frac{EA}{l}cs & -\frac{EA}{l}s^2 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ $\begin{matrix} \circ & \circ \\ a & b \end{matrix}$